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09/830,145	04/20/2001	Christian John Cook	14684.47	9802

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EXAMINER

SUN, XIUQIN

ART UNIT PAPER NUMBER

2863

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/830,145	<b>Applicant(s)</b> COOK, CHRISTIAN JOHN	
	<b>Examiner</b> Xiuqin Sun	<b>Art Unit</b> 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04/22/2004.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 39-41, 43-45, 47-67 and 89-108 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40, 52 and 89-108 is/are allowed.
- 6) ☒ Claim(s) 39, 41, 43-45, 47-51, 54-57 and 60-67 is/are rejected.
- 7) ☒ Claim(s) 53, 58 and 59 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Upon further consideration, the allowable subject matter of claims 39-41, 43-45 and 47-67 as indicated in the last Office Action mailed on 02/10/2004 has been withdrawn and replaced by the following office action. Any inconvenience to the Applicant(s) is regretted.

#### ***Election/Restrictions***

2. Applicant's election without traverse of inventions III (claims 39-67 along with generic claims 89-94) in Paper No. 8 is acknowledged.

3. The cancellation of the claims 1-38, 42, 46 and 68-88 and the addition of the claims 95-108 are acknowledged.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 39, 41, 43-45, 47-51 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tong et al. (U.S. Pat. No. 5595444) in view of Bardy (U.S. Pat. No. 6704595).

Tong et al. teach a method for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered (col. 2, lines 32-48; col. 12, lines 44-62; col. 10, lines 4-9; col. 15, lines 19-27; col. 6, lines 34-44 and col. 15, lines 1-12), comprising: obtaining measurements corresponding to a body temperature of the animal (col. 2, lines 32-48; col. 5, lines 47-67; col. 6, lines 1-8 and col. 8, lines 3-49); determining an indication or measure of the extent of variation in said measurements as a whole (col. 2, lines 32-48; col. 3, lines 45-65); and comparing said indication or measure of the extent of variation to a predetermined threshold (col. 2, lines 32-48; cols. 6-7, lines 45-5); and setting the animal aside for a predetermined animal withholding period in the event of the threshold being exceeded (col. 6, lines 45-67 and col. 7, lines 24-25). Tong et al. further teach that: said measurements are taken on the outer part of the animal's body (col. 5, lines 47-67).

Tong et al. do not mention explicitly: said measurements of body temperature are obtained at periodic sampling intervals over a predetermined time period; said indication or measure of the extent of variation is defined over said time period; ten or more measurements corresponding to body temperature are taken; the predetermined time period is at least 12 hours; the predetermined time period extends up to 24 hours; the indication or measure of the extend of variation is applied progressively as each measurement corresponding to body temperature is taken; the indication or measure of the extend of variation is applied at an end of the predetermined time period; said comparison is conducted after each application of

the algorithm; in the event of the threshold being exceeded, providing an indication of the threshold being exceeded.

Bardy discloses a method and system for monitoring and diagnosing heart failure of a human body (see Abstract). Bardy teaches: obtaining measurements corresponding to a body temperature of the subject at periodic sampling intervals over a predetermined time period, wherein ten or more measurements corresponding to body temperature are taken (col. 8, lines 58-67; col. 9, lines 1-67; col. 10, lines 1-6 and lines 24-67 and col. 11, lines 1-7); determining an indication or measure of the extent of variation in said measurements as a whole over said time period, wherein the indication or measure of the extend of variation is applied progressively as each measurement corresponding to body temperature is taken and/or at an end of the predetermined time period (col. 12, lines 60-67; col. 13, lines 1-67; col. 15, lines 7-67; col. 16, lines 1-19 and col. 21, lines 1-48); and comparing said indication or measure of the extent of variation to a predetermined threshold, wherein said comparison is conducted after each application of the algorithm (col. 12, lines 60-67; col. 13, lines 1-67; col. 15, lines 7-67; col. 16, lines 1-19 and col. 21, lines 1-48); in the event of the threshold being exceeded, providing an indication of the threshold being exceeded (col. 15, lines 7-67; col. 16, lines 1-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Bardy in the invention of Tong in order to detect anomalous variations in regularly collected physiological data indicative of the onset, progression, regression, or status quo of any disorder or

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failure of growth or health of a subject (Bardy, col. 3, lines 58-67 and col. 4, lines 1-8).

Bardy teaches that the measurement should be conducted at periodic sampling intervals over a certain predetermined time period (col. 8, lines 58-67; col. 9, lines 1-67; col. 10, lines 1-6 and lines 24-67 and col. 11, lines 1-7). It would have been obvious to one having ordinary skill in the art at the time the invention was made optimize the range of the time period, so that the predetermined time period is at least 12 hours and the predetermined time period extends up to 24 hours, in order to obtain more representative samples to derive more accurate results from the measurements (col. 8, lines 58-67; col. 9, lines 1-67; col. 10, lines 1-6 and lines 24-67 and col. 11, lines 1-7), since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

6. Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tong et al. (U.S. Pat. No. 5595444) in view of Bardy (U.S. Pat. No. 6704595), as applied to claim 39 above, and further in view of Wallace et al. (U.S. Pat. No. 4865044).

Tong et al. and Bardy teach a method including the subject matter discussed above. Tong et al. and Bardy do not mention explicitly that: skin temperature measurements are taken and compensation is provided for at least ambient temperature or solar radiation; measurements are taken in the ear canal of the animal.

Wallace et al. teach a temperature sensing device for measuring a body temperature of the animal, wherein skin temperature measurements are taken and

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compensation is provided for at least ambient temperature or solar radiation (col. 4, lines 54-67; col. 5, lines 1-2; col. 5, lines 16-35; col. 6, lines 65-67 and col. 7, lines 1-46); and measurements are taken in the ear canal of the animal (Fig. 2; col. 2, lines 35-46; col. 4-5, lines 54-2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Wallace et al. in the combination of Tong et al. and Bardy in order to provide an inexpensive and effective approach to detect a body temperature of the animal wherein the variation of animal's body temperature with ambient temperature can be compensated (Wallace et al., col. 1, lines 22-28).

7. Claim 57, 61-63 and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tong et al. (U.S. Pat. No. 5595444) in view of Wallace et al. (U.S. Pat. No. 4865044) and Bardy (U.S. Pat. No. 6704595).

Tong et al. teach a system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered (col. 2, lines 32-48; col. 12, lines 44-62; col. 10, lines 4-9; col. 15, lines 19-27; col. 6, lines 34-44 and col. 15, lines 1-12), comprising: a device for obtaining measurements corresponding to the body temperature of the animal (col. 2, lines 32-48; col. 5, lines 47-67; col. 6, lines 1-8 and col. 8, lines 3-49); a processor or controller configured to: receive said measurements from said measurement device (col. 6, lines 34-44; col. 8, lines 3-49; col. 11, lines 57-67 and col. 12, lines 1-25); determine an indication or measure of the extent of variation in said measurements as a whole (col. 2, lines 32-48; col. 3, lines 45-65); compare said indication or measure of the extent of variation

to a predetermined threshold to obtain a result and provide said result of said comparison as output (col. 2, lines 32-48; cols. 6-7, lines 45-5); said processor is operable to compare the output of the algorithm to a predetermined threshold (col. 2, lines 32-48; cols. 6-7, lines 45-5); an indicator to indicate whether the output of the algorithm has exceeded the predetermined threshold (col. 13, lines 14-59); and said indicator is also operable to provide an indication that the system is functioning (col. 13, lines 14-59).

Tong et al. do not mention explicitly: said measurement device is a body mountable device; said measurements of body temperature are obtained at periodic sampling intervals over a predetermined time period; said indication or measure of the extent of variation is defined over said time period; said time period is between 3-36 hours; said system is embodied in an all-in-one indicator device; said device is provided in the form of an ear tag; the tag incorporates the measurement device; said processor is provided by way of a remote computer.

Wallace et al. teach a temperature sensing device and system for measuring a body temperature of the animal, wherein said device is a body mountable measurement device (Fig. 2; col. 2, lines 35-46; col. 4-5, lines 54-2). The teaching of Wallace et al. further includes: said device is provided in the form of an ear tag (cols. 4-5, lines 54-15 and col. 9, lines 20-29); the tag incorporates the measurement device (cols. 4-5, lines 54-15 and col. 9, lines 20-29); said processor is provided by way of a remote computer (cols. 4-5, lines 54-15 and col. 9, lines 20-29).



It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Wallace et al. in the invention of Tong et al. in order to provide an inexpensive and effective approach to detect a body temperature of the animal (Wallace et al., col. 1, lines 22-28).

Bardy discloses a method and system for monitoring and diagnosing heart failure of a human body (see Abstract). Bardy teaches: obtaining measurements corresponding to a body temperature of the subject at periodic sampling intervals over a predetermined time period (col. 8, lines 58-67; col. 9, lines 1-67; col. 10, lines 1-6 and lines 24-67 and col. 11, lines 1-7); determining an indication or measure of the extent of variation in said measurements as a whole over said time period (col. 12, lines 60-67; col. 13, lines 1-67; col. 15, lines 7-67; col. 16, lines 1-19 and col. 21, lines 1-48); and comparing said indication or measure of the extent of variation to a predetermined threshold (col. 12, lines 60-67; col. 13, lines 1-67; col. 15, lines 7-67; col. 16, lines 1-19 and col. 21, lines 1-48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Bardy in the invention of Tong in order to detect anomalous variations in regularly collected physiological data indicative of the onset, progression, regression, or status quo of any disorder or failure of growth or health of a subject (Bardy, col. 3, lines 58-67 and col. 4, lines 1-8).

Bardy teaches that the measurement should be conducted at periodic sampling intervals over a certain predetermined time period (col. 8, lines 58-67; col. 9, lines 1-67; col. 10, lines 1-6 and lines 24-67 and col. 11, lines 1-7). It would have

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been obvious to one having ordinary skill in the art at the time the invention was made optimize the range of the time period, such that the predetermined time period is between 3-36 hours, in order to obtain more representative samples to derive more accurate results from the measurements (col. 8, lines 58-67; col. 9, lines 1-67; col. 10, lines 1-6 and lines 24-67 and col. 11, lines 1-7), since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

8. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tong et al. in view of Wallace et al. and Bardy, as applied to claim 57 above, and further in view of Matsumura (U.S. Pat. No. 5050612)

Tong et al., Wallace et al. and Bardy teach a system including the subject matter discussed above. The combination of Tong et al., Wallace et al. and Bardy does not mention explicitly: said system is embodied in an all-in-one indicator device.

Matsumura discloses a device and system for computer-assisted monitoring of the body, wherein the system is embodied in an all-in-one indicator device (Fig. 8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Matsumura in the invention of Tong et al., Wallace et al. and Bardy in order to provide a stand-alone and portable device which can be carried by a moving subject for monitoring body temperature (Matsumura, cols. 1-2, lines 58-3).

***Allowable Subject Matter***

9. Claims 40, 52 and 89-108 are allowed.
10. Claims 53, 58 and 59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Reasons for Allowance***

11. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 40 and 52 is the inclusion of the method step of correlating the results of the algorithm with at least one of a meat tenderness, a pH, and a stress standard. It is this step found in the claim, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claims 53 and 59 is the inclusion of the limitation that the determining said indication or measure of the extent of variation comprises:

$t_{ear}$  is the instantaneous ear temperature;

$t_{ambient}$  is the instantaneous ambient air temperature;

$d$  is the difference between ear and ambient temperatures;

$fast$  is the fast-response filter element;

$slow$  is the slow response filter element;

$v$  is the integral of the difference between the two filter elements;

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$c_1$  is the time constant of the fast filter;

$c_2$  is the time constant of the slow filter;

Time constants are such that  $c_1 > c_2$ ,  $0 < c_1 < 1$ ,  $0 < c_2 < 1$ ;

where initially:

$$n = 1$$

$$d_0 = t_{ear} - t_{ambient}$$

$$fast_0 = d_0$$

$$slow_0 = d_0$$

$$v_0 = 0$$

and where at each sampling interval:

$$d_n = t_{ear} - t_{ambient}$$

$$fast_n = (1 - c_1) * fast_{n-1} + c_1 * d_n$$

$$slow_n = (1 - c_2) * slow_{n-1} + c_2 * d_n$$

then:  $v_n = v_{n-1} + (fast_n - slow_n)$ . It is these steps found in each of the claims, as they are claimed in the combination, that have not been found, taught or suggested by the prior art of record, which make these claims allowable over the prior art.

The primary reason for the allowance of claim 58 is the inclusion of the limitation that said processor configured to calculate the variance between each measurement and the mean and add all the variances to obtain a cumulative variance score. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes the claim allowable over the prior art.

The primary reason for the allowance of claims 89-94 and 108 is the inclusion of the limitations of: one or more animal temperature sensors disposed on/in the attachment portion for contact with the animal during use. It is this step found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 95-98 is the inclusion of the step of adding all variances to obtain the cumulative temperature variance score, and comparing said score to a predetermined threshold. It is this step found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 99 is the inclusion of the method step of applying an algorithm to the measurements which cumulatively takes account of variations in body temperature over time. It is this step found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes the claim allowable over the prior art.

The primary reason for the allowance of claims 100 and 102 is the inclusion of the method steps of applying an algorithm where:

$t_{ear}$  is the instantaneous ear temperature;

$t_{ambient}$  is the instantaneous ambient air temperature;

$d$  is the difference between ear and ambient temperatures;

$fast$  is the fast-response filter element;

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*slow* is the slow response filter element;

*v* is the integral of the difference between the two filter elements;

$c_1$  is the time constant of the fast filter;

$c_2$  is the time constant of the slow filter;

Time constants are such that  $c_1 > c_2$ ,  $0 < c_1 < 1$ ,  $0 < c_2 < 1$ ;

where initially:

$$n = 1$$

$$d_0 = t_{ear} - t_{ambient}$$

$$fast_0 = d_0$$

$$slow_0 = d_0$$

$$v_0 = 0$$

and where at each sampling interval:

$$d_n = t_{ear} - t_{ambient}$$

$$fast_n = (1 - c_1) * fast_{n-1} + c_1 * d_n$$

$$slow_n = (1 - c_2) * slow_{n-1} + c_2 * d_n$$

then:  $v_n = v_{n-1} + (fast_n - slow_n)$ ; and comparing  $v_n$  to a predetermined threshold. It

is these steps found in each of the claims, as they are claimed in the

combination, that have not been found, taught or suggested by the prior art of

record, which make these claims allowable over the prior art.

The primary reason for the allowance of claim 101 is the inclusion of the limitations of adding all variances to obtain a cumulative variance score; and providing an output of the cumulative variance score. It is these limitations found in the claim, as it is claimed in the combination, that have not been found, taught or

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suggested by the prior art of record, which make the claim allowable over the prior art.

The primary reason for the allowance of claims 103-105 and 107 is the inclusion of the limitation of a processor having an input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm to the measurements, which algorithm cumulatively takes account of variations in body temperature over a time window, wherein the processor has an output means for providing the result of the algorithm. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 106 is the inclusion of the limitation of a processor having an input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm to the measurements, which algorithm cumulatively takes account of variations in body temperature over a time window, wherein the processor has an output adapted to output a numeric value result of the algorithm from a comparison with a meat tenderness scale. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes the claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

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preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

12. Applicant's arguments filed on 04/22/2004 with respect to claims 89-94 and 108 have been considered and are persuasive. Therefore, these claims are allowed.

Claims 39, 41, 43-45, 47-51, 54-57 and 60-67 are rejected based the newly found prior art reference (Bardy, U.S. Pat. No 6704595 B2). See sections 2-6 set forth above for details.

### ***Prior Art Citations***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Jones et al. (U.S. Pat. No. 5458418) disclose a method for detecting poor meat quality in live animals.

2) Hofman (U.S. Pat. No. 5682149) teaches a body mountable measurement device for measuring body temperature of living animals.

3) Tremblay et al. (U.S. Pat. No. 6432399) disclose a method for analyzing the dependence of stress on body temperature in mammals.

### ***Conclusion***



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14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### ***Contact Information***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
XS

June 21, 2004

Xiuqin Sun  
Examiner  
Art Unit 2863

  
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